

Review

quiz answers:

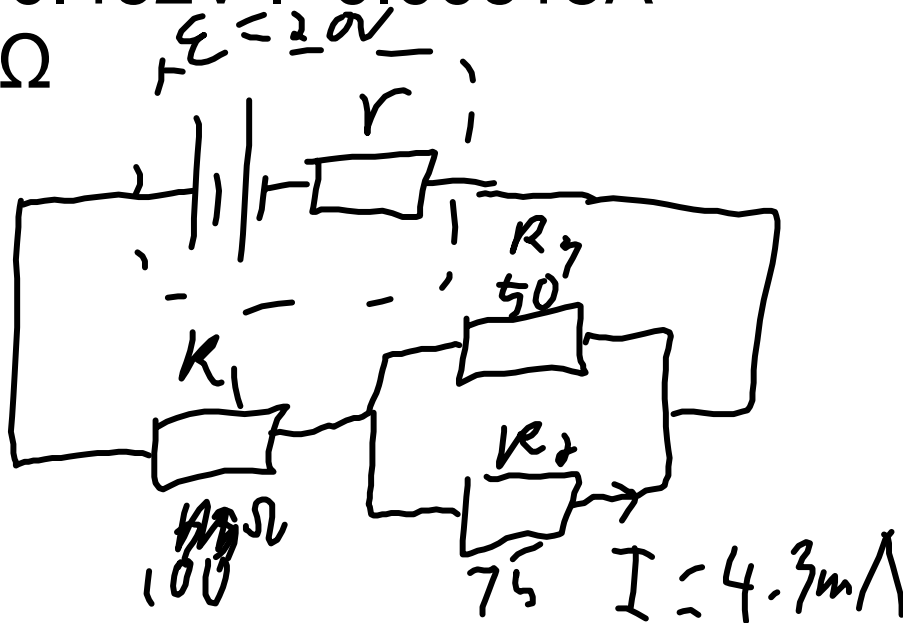
a) Feb 15th notes:

b) $R_t = 130\Omega$

c) $P = 0.0237W$

d) $V=0.462V$ $I=0.00615A$

e) 56Ω



$$V_2 = I_2 R_2 = 75 \times 0.0043 = 0.3225V$$

$$I_3 = \frac{0.3225}{50} = 6.45mA$$

$$I_1 = I = I_2 + I_3$$

$$I = 6.43 \text{ mA} + 4.3 \text{ mA}$$

$$= 10.73 \text{ mA}$$

$$R_T = \frac{\mathcal{E}_{\text{ext}}}{I} = \frac{2.0 \text{ V}}{0.01073 \text{ A}} = 186.4 \Omega$$

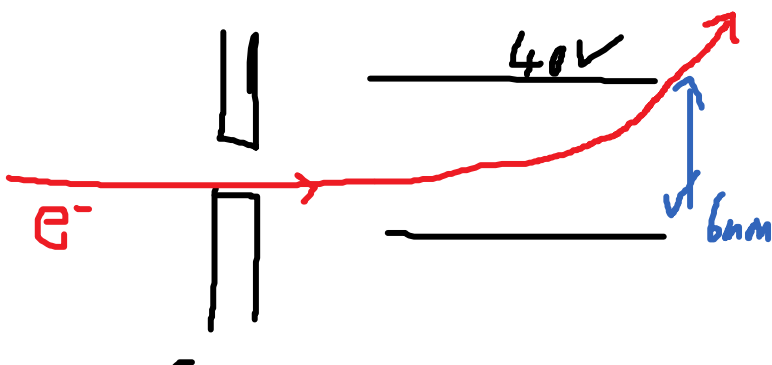
external \nearrow

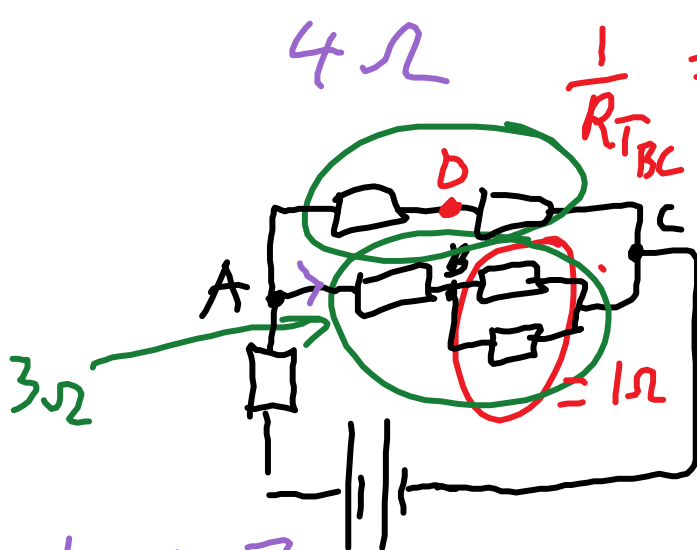
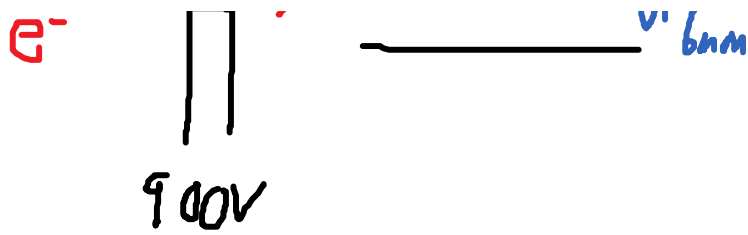
$r \nearrow$

130

5645

1.





if all the
 resistors are
 2.0Ω
 determine V_{BC}

$$\frac{1}{3} + \frac{1}{4} = \frac{7}{12} \quad 12V$$

$$R_T = \frac{12}{7}$$

$$R_{\text{eq}} = 2 + \frac{12}{7}$$

if D is cut, how does V_{BC}
 change? up/down/same?

$$\approx 3.714 \Omega \quad I = \frac{V}{R_T} = \frac{12}{3.714} = 3.24 \text{ A}$$

$$V_1 = I_1 R_1 = 3.24 \text{ A} \times 2 = 6.48 \text{ V}$$

$$V_{AC} = 12 - 6.48 \text{ V} = 5.52 \text{ V}$$

$$I_{AC} = \frac{5.52 \text{ V}}{3 \Omega} = 1.84 \text{ A}$$

$$V_{BC} = 5.52 \text{ V} - V_{AB} = 5.52 - 2 \Omega \times 1.84 \text{ A} = 1.8 \text{ V}$$

if you cut D, the current has less paths to go, so R_T increases. I decreases so V_1 decreases and V_{AC} and V_{BC} increases.